

CLAIMS

We claim:

1. A method of isolating a microbial species from a source environment,
5 comprising:
 - gathering at least one microorganism from the source environment;
 - providing a volume of culture medium to the microorganism in at least
one microtiter plate compartment;
 - incubating the microorganism in the medium for a period of time and in
10 an environment sufficient to result in growth of the microorganism if the medium and
environment are capable of supporting such growth; and
 - detecting growth of the microorganism.
2. The method of claim 1, wherein a plurality of individual
15 microorganisms are separately incubated in microtiter plate compartments.
3. The method of claim 2, wherein the plurality is at least 20.
4. The method of claim 2, wherein the plurality is at least 50.
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5. The method of claim 2, wherein the plurality is at least 100.
6. The method of claim 2, wherein the plurality is at least 400.
7. The method of claim 2, wherein the plurality is at least 1000.
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8. The method of claim 2, wherein the plurality is at least 1500.
9. A method of identifying at least one microbial species from a source
30 environment, comprising:
 - isolating at least one microbial species as in claim 1; and
 - identifying the at least one microbial species.
10. The method of claim 1, wherein the microorganism is a previously
35 uncultured microorganism.

11. The method of claim 1, wherein the source environment is a non-laboratory environment.

5 12. The method of claim 1, wherein the source environment is a natural environment.

13. The method of claim 1, wherein more than one microorganism is gathered from the source environment.

10 14. The method of claim 13, wherein each organism is provided a volume of medium in a separate compartment.

15 15. The method of claim 14, wherein the volume of medium is no greater than about 1 m/L.

16. The method of claim 14, wherein the organisms are placed in the separate compartments using flow cytometry, cell sorting, or dilution.

20 17. The method of claim 1, further comprising identifying or counting at least one microorganism that grew.

25 18. The method of claim 17, wherein identifying the microorganism includes hybridization of a probe to a nucleic acid molecule of the microorganism.

19. The method of claim 17, wherein identifying the microorganism includes amplification of a nucleic acid molecule of the microorganism.

20 20. The method of claim 17, wherein identifying the microorganism includes immunodetection of a molecule of the microorganism.

30 21. The method of claim 17, wherein identifying the microorganism includes sequencing of a nucleic acid molecule of the microorganism.

22. The method of claim 1, wherein detecting growth of the microorganism is automated.

23. The method of claim 17, wherein identification of the microorganism is
5 automated.

24. The method of claim 17, wherein identifying or counting a
microorganism comprises depositing cells in a two-dimensional array, such that
different cultures arising from different cells each occupy a unique position in the
10 array.

25. The method of claim 17, wherein identifying or counting a
microorganism comprises use of a technique that reveals a genetic or enzymatic
property of the microorganisms.

15 26. The method of claim 17, wherein a cultured strain of bacteria, called a reporter strain, is added to the medium with an unknown cell from nature, such that production of at least one compound by the unknown cell is revealed by a growth or genetic responses of the reporter strain.